Title (en)

SYSTEM FOR MAGNETORHEOLOGICAL FINISHING OF A SUBSTRATE

Title (de)

SYSTEM ZUR MAGNETORHEOLOGISCHEN FEINBEARBEITUNG EINES SUBSTRATS

Title (fr)

SYSTÈME DE FINITION MAGNÉTORHÉOLOGIQUE D'UN SUBSTRAT

Publication

EP 2403686 B1 20140122 (EN)

Application

EP 10749207 A 20100302

Priority

- US 2010025931 W 20100302
- US 15802109 P 20090306

Abstract (en)

[origin: WO2010101925A2] A system for magnetorheological finishing of a substrate. A spherical wheel meant for carrying a magnetorheological finishing fluid houses a variable-field permanent magnet system having north and south iron pole pieces separated by primary and secondary gaps with a cylindrical cavity bored through the center. A cylindrical permanent magnet magnetized normal to the cylinder axis is rotatably disposed in the cavity. An actuator allows rotation of the permanent magnet to any angle, which rotation changes the distribution of flux in the magnetic circuit through the pole pieces. Thus, one can control field intensity in the gaps by positioning the permanent magnet at whatever angle provides the required field strength. Because the field also passes above the pole pieces, defining a fringing field outside the wheel surface, the variable field extends through a layer of MR fluid on the wheel, thus varying the stiffness of the MR fluid as may be desired for finishing control.

IPC 8 full level

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CPC (source: EP KR US)

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DOCDB simple family (publication)

WO 2010101925 A2 20100910; **WO 2010101925 A3 20110120**; CN 102341216 A 20120201; CN 102341216 B 20131218; EP 2403686 A2 20120111; EP 2403686 A4 20121226; EP 2403686 B1 20140122; ES 2450120 T3 20140324; IL 214273 A0 20110927; IL 214273 A 20150226; JP 2012519600 A 20120830; JP 5623437 B2 20141112; KR 101333479 B1 20131126; KR 20110117149 A 20111026; US 2011312248 A1 20111222; US 8944883 B2 20150203

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